CLAIMS

What is claimed is:

1. A photoresist masking material, comprising:

a) an octafunctional epoxidized novolac resin;

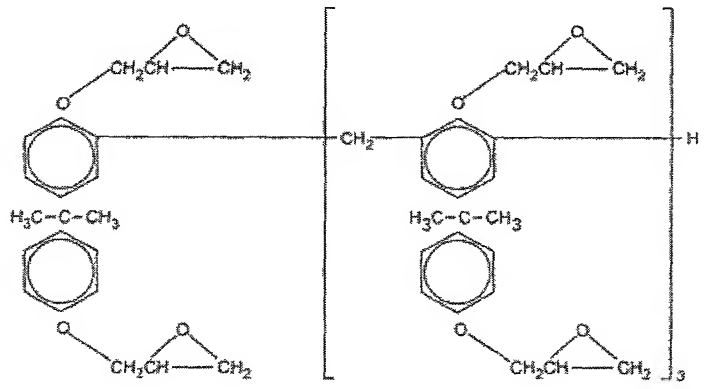
b) an organic solvent;

c) a photopolymerization initiator;

d) a plasticizer selected from the group consisting of dialkylphthalates, dialkylmalonates, dialkylsebacates, dialkyladipates, and diglycidyl hexahydrophthalates; and

e) an adhesion promoter selected from the group consisting of glycidoxypropanetrimethoxysilane, mercatopropyltrimethoxysilane, and aminopropyltrimethoxysilane.

2. A photoresist masking material according to claim 1 wherein said octafunctional epoxidized novolac resin is of the formula:



3. A photoresist masking material according to claim 1 wherein said solvent has a boiling point of between 160°C and 260°C.

4. A photoresist masking material according to claim 1 wherein said solvent has a boiling point of between 190°C and 220°C.

5. A photoresist masking material according to claim 1 wherein said solvent has a boiling point of between 200°C and 210°C.

6. A photoresist masking material according to claim 1 wherein said solvent is gamma butyrolactone.

7. A photoresist masking material according to claim 1 wherein said solvent is present in an amount ranging between about 15% and about 45%.

8. A photoresist masking material according to claim 1 wherein said solvent is present in an amount ranging between about 20% and about 30%.

9. A photoresist masking material according to claim 1 wherein said solvent is present in an amount of about 26%.

10. A photoresist masking material according to claim 1 wherein said photopolymerization initiator is present in an amount ranging between about 3% and about 10%.

11. A photoresist masking material according to claim 1 wherein said photopolymerization initiator is present in an amount ranging between about 5% and about 8%.

12. A photoresist masking material according to claim 1 wherein said photopolymerization initiator is present in an amount ranging between about 6% and about 7%.

13. A photoresist masking material according to claim 1 wherein said photopolymerization initiator is Cyracure® 6974.

14. A photoresist masking material according to claim 1 wherein said plasticizer is present in an amount ranging between about 0.5% and about 3%.

15. A photoresist masking material according to claim 1 wherein said plasticizer is present in an amount of about 2%.

16. A photoresist masking material according to claim 1 wherein said plasticizer is a dialkylphthalate.

17. A photoresist masking material according to claim 1 wherein said dialkylphthalate is dioctylphthalate.

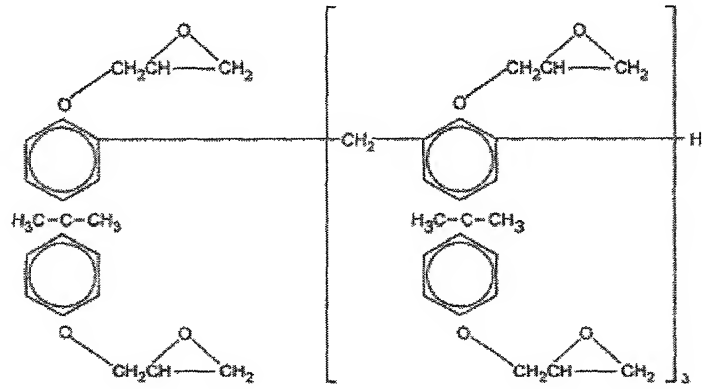
18. A photoresist masking material according to claim 1 wherein said adhesion promoter is present in an amount ranging between about 1% and about 6%.

19. A photoresist masking material according to claim 1 wherein said adhesion promoter is present in an amount ranging between about 3% and about 4%.

20. A photoresist masking material according to claim 1 wherein said adhesion promoter is glycidoxypropanetrimethoxysilane.

21. A photoresist masking material, comprising:

a) 50% to 75% of an octafunctional epoxidized novolac resin of the formula:



b) 15% to 45% of an organic solvent;

c) 3% to 7% a photopolymerization initiator;

d) 0.5% to 3% of a plasticizer selected from the group consisting of dialkylphthalates, dialkylmalonates, dialkylsebacates, dialkyladipates, and diglycidyl hexahydrophthalates; and

e) 1% to 6% of an adhesion promoter selected from the group consisting of glycidoxypropanetrimethoxysilane, mercatopropyltrimethoxysilane, and aminopropyltrimethoxysilane.

22. A method of improving the adhesion of an SU-8-based photoresist masking composition, said method comprising the step of including in the composition 0.5% to 3% of a plasticizer selected from the group consisting of dialkylphthalates, dialkylmalonates, dialkylsebacates, dialkyladipates, and diglycidyl hexahydrophthalates.

23. The method of claim 21 wherein said plasticizer is a dialkylphthalate.

24. The method of claim 21 wherein said plasticizer is dioctylphthalate.

25. A method of improving the resistance to cracking and film stress of an SU-8-based photoresist masking composition, said method comprising the step of including in the composition 1% to 6% of an adhesion promoter selected from the group consisting of glycidoxypropanetrimethoxysilane, mercatopropyltrimethoxysilane, and aminopropyltrimethoxysilane.

26. The method of claim 21 wherein said adhesion promoter is glycidoxypropanetrimethoxysilane.